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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/056,387      | 01/24/2002  | Kwong Hon Wong       | FIS9-2001-0166US1   | 3896             |

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| EXAMINER |
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DEO, DUY VU NGUYEN

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| ART UNIT | PAPER NUMBER |
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1765

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                             |  |
|------------------------------|-------------------------------|-----------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/056,387 | Applicant(s)<br>WONG ET AL. |  |
|                              | Examiner<br>DuyVu n Deo       | Art Unit<br>1765            |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-14 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-14 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiest, III et al. (US 6, 375,791).

Chiest describes a method for polishing a wafer comprising: adding a chemical marker to the slurry (claimed mixing a marker with a slurry to form a slurry mixture) (col. 2, line 32, 32; col. 3, line 2); polishing the wafer using the slurry (col. 3, line 2-6); rinsing the slurry from the wafer (col. 3, line 28-30); checking the wafer for the chemical marker (col. 3, line 30-35); repeating the rinsing if the chemical marker (or slurry) is still on the wafer (col. 10, line 53-61). Unlike claimed invention, Chiest doesn't describe the marker has a phosphorescence upon illumination by a light source. However he teaches that the marker has fluorescence upon illumination with a light source (col. 9, line 55-67). Therefore, it would have been obvious for one skilled in the art to use other marker including phosphorescence as long as it can produce light upon illumination with a light source in order to detect the slurry on the wafer with a reasonable expectation of success.

Referring to claim 2, the checking process comprises illuminating the wafer with a light source and detecting the fluorescent light from the wafer (claimed spectrum of light and marker has one of a fluorescence) (col. 9, line 55-67).

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Referring to claim 4, the light source includes electromagnetic radiation of a predetermined wavelength in the UV or infrared light, x-ray (this would include claimed laser) (col. 7, line 1-10; col. 8, line 3, line 39, 40; col. 9, line 35, 36).

Referring to claim 3, even though Chiest is silent about where to check for the marker (such as claimed edges of the wafer) on the wafer; however, it would be obvious that the marker can be checked anywhere on the wafer including the edges of the wafer in order to determine if the slurry is still on the wafer. At this time there is no unexpected result for checking the marker at the edges of the wafer.

Referring to claim 6, even though Chiest doesn't describe that the marker is small enough quantity so as to not affect polishing capability of the slurry; however, it would have been obvious to one skill in the art to recognize this and to do so because the process is to polish to produce a quality semiconductor wafer (col. 1, line 55-65). Therefore, it would be obvious for one skill in the art to determine the amount of marker in the slurry through routine experimentation in order to provide an optimum amount of marker for the polishing of the wafer with a reasonable expectation of success.

#### ***Allowable Subject Matter***

3. Claims 7-14 are allowed for the same reason indicated in the previous action.

#### ***Response to Arguments***

4. Applicant's arguments filed 5/10/04 have been fully considered but they are not persuasive.

Referring to applicant's argument that the invention presents an improvement of the process by providing a marker that has the ability to phosphorescence, which makes the marker easier to detect than chemicals that merely fluorescence, as is described in Chiest is found unpersuasive because there is no evidence to support this advantage. Furthermore, the application shows that either phosphorescence or fluorescence markers will work. Therefore, there is no unexpected result of using phosphorescence over the fluorescence marker.

It is found unpersuasive that by not mentioning about checking the edges of the wafer, Chiest demonstrates that such a feature is not obvious and has novelty because Chiest doesn't teach against to do so.

Referring to applicant's argument that it is not obvious by Chiest to use small enough quantities as not to affect the polishing capability of the slurry because Chiest doesn't not use markers that have high vapor pressure than the slurry and/or makers that have the ability to phosphorescence, this is found unpersuasive because as taught by Chiest that the process is to polish to produce a quality semiconductor wafer (col. 1, line 55-65). The process is not to produce a low quality wafer and affecting the polishing capability would directly affect the quality of the wafer. Therefore, using an amount small enough not to affect the polishing capability of the slurry would be obvious.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-3:30; with alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DVD

8/2/04

